Abstract

This invention is directed to a DNA sequence comprising a nucleotide sequence encoding a variant paraoxonase protein and to said variant paraoxonase protein as well as a method and a kit for detecting a risk of cancer, coronary or cerebrovascular disease, hypertension, type 2 diabetes , dementia, joint arthrosis, cataract, or sensitivity to organophosphorus compounds in a subject, the method comprising isolating genomic DNA from said subject, determining the allelic pattern for the codon 102 of the paraoxonase encoding *PON1* gene in the genomic DNA, identification of Ile101Val mutation indicating said risk being increased and for targeting paraoxonase activity modulating therapies. Further this invention relates to transgenic animals comprising a human DNA molecule encoding said variant paraoxonase and to a method of phenotype-targeted gene sequencing.